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Biogeography and ecology of a dimorphic trait in *Triturus alpestris* (Amphibia, Caudata)

Paedomorphosis is an evolutionary process in which larval structures are retained in adult animals. In newts and salamanders, this heterochronic process is widely represented and concerns the retention of gill slits. Our aim was to find out whether habitat and geographical determinants may be associated with paedomorphosis in a European species of newt. To this end, we determined the main characteristics of the aquatic sites containing paedomorphic Alpine newts that have been described in the literature or discovered by one of us. Although metamorphs are widely distributed in Europe, paedomorphs were only found at the southern margin of the geographic range of the species: mainly in the Italian and Balkan peninsulas. They were recorded in 87 aquatic sites. No single trend was outlined for the analyzed ecological parameters of the aquatic and surrounding terrestrial habitats (e.g. altitude, maximum water depth, drying and presence of forest). These results show that paedomorphs can be found in favorable aquatic habitats surrounded by hostile terrestrial landscapes, but also in temporary waters located in proximity to appropriate terrestrial environments. Models predicting paedomorphosis in varied environments are thus supported, but require complementary investigations on the costs and benefits of each alternative ontogenetic pathway. On the other hand, the southern limitation of the heterochronic phenomenon and the existence of favorable sites in northern and eastern Europe suggest a genetic basis for paedomorphosis in the studied species.

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A new species of killifish of the genus *Rivulus* (Cyprinodontiformes) from northeast of Manaus, Brazil

Recent collections of cyprinodontiform fishes in Reserva Ducke and in forested areas northeast of Manaus resulted in the discovery of a new species of *Rivulus*. In the Manaus area three *Rivulus* species occur: *R. obscurus*, *R. cf. micropus* and the new species provisionally identified as *R. sp. Ducke*. Molecular phylogenetic analysis indicates that the new species is member of a clade of small *Rivulus* species from the Guyana Shield. Its sister taxon is a clade consisting of *Rivulus retrocaudatus* from Quisto Cocha area of Peru, and *Rivulus tecminae* and *R. sp. Tobogan de la Selva* from upper Orinoco River tributaries of the Amazonas state, Venezuela. The new species occurs sympatrically with *R. cf. Micropus*; however, they are not syntopic. *R. cf. micropus* occurs in flood-leaf litter or remnant pools of larger creeks, while *R. sp. Ducke* occurs in the main-stream of fast-flowing small rivulets hiding under rocks and vegetation. The new species is found in low densities, and as single individuals. Aquarium observations support the hypothesis that the new species is highly territorial and aggressive towards conspecifics. Males and females of the new species show little sexual dimorphism, and females lack the *Rivulus*-spot; this characteristic is common of all members of small *Rivulus* species clade from the Guyana Shield.

Abstracts



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